App. No. 10/070,288
Office Action Dated January 20, 2006

REMARKS

Favorable reconsideration of this application is requested in view of the above amendments and the following remarks. Claims 1 and 16 are hereby amended.

Amendments of claims 1 and 16 are supported by Figures 1, 2, and 5.

Claims 1, 2, 9, and 16 were rejected as being anticipated by Yamazaki (US 5,608,695). Applicants traverse this rejection. Yamazaki does not disclose or suggest an optical semiconductor device including an emitted beam dividing portion for dividing an emitted light into a main beam and two sub beams as well as dividing a reflected light beam in a direction lateral to the direction in which the emitted beam is divided, as required by claims 1 and 16. Yamazaki teaches that +1-order and -1-order diffracted beams emanating from a first hologram (28a) are incident upon photodetectors (31, 34), respectively, and +1-order and -1-order diffracted beams emanating from a second hologram (28b) are incident upon photodetectors (32, 33), respectively. See column 4, lines 50-58 and Figures 6 and 7. While Yamazaki may teach that the first hologram (28a) divides a reflected light beam into a main beam and two sub beams, the reference does not suggest that the second hologram (28b) generates three beams. Figure 7 of Yamazaki teaches photodetectors (31, 34) that are disposed on respective sides of a laser (29). Neither of the photodetectors (31, 34) is divided in a direction lateral to the direction of the arrangement of the photodetectors (31, 34). Therefore, Yamazaki does not teach that each of the photodetectors (31, 34) includes three detecting sections arranged in a direction lateral to the direction of the arrangement of the detecting portions for receiving a main beam and sub beams (in a three-beam method). Since Yamazaki does not teach detection of sub beams (from 28b), neither does it teach generation thereof. Therefore, neither does Yamazaki suggest the first, second, and third diffraction grating regions required by claim 1 and 16. In fact, Yamazaki discusses problems associated with a three beam method (when use is made of a magneto-optical recording medium as the optical recording medium, a groove formed in the magneto-optical medium generally has a depth of $\lambda/8$, and thus it is impossible to attain a large tracking error signal by the three beam method). See column 2, lines 48-53. Instead of the three-beam method required by claims 1 and 16, Yamazaki teaches a method of detecting a tracking error signal in accordance with a push-pull method on the basis of the distribution of an amount of light in the

far field of the diffracted beam caused by the astigmatism in the +1-order and -1-order diffracted beams diffracted by the second hologram (28b). See column 5, line 58 to column 6, line 16. In fact, it is the push-pull method taught by Yamazaki that allows for only one beam to be used. Therefore, Yamazaki teaches away from the invention of claims 1 and 16.

Further, Yamazaki fails to suggest a signal–detecting photodetector element that receives a zero order diffracted beam from the reflected beam dividing portion, as required by claims 1 and 16.

The optical semiconductor devices of claims 1 and 16 provide efficient use of a reflected light beam while reducing the light receiving area of the signal-detecting photodetector element. The reduced light receiving area allows a decrease in capacitance associated with the photodetector element, ensuring high-speed response, as well as decreasing stray light incident to the signal-detecting photodetector element. Therefore, the optical semiconductor devices of claims 1 and 16 provide reproduction signals with excellent S/N ratios.

Favorable reconsideration of claims 1, 2, 9, and 16 is requested.

Claims 3 and 4 were rejected as being unpatentable over Yamazaki in view of Katayama (US 6,894,958). Applicants traverse this rejection. Claims 3 and 4 should be considered allowable for at least the same reasons as claim 1, from which they depend. Katayama does not remedy the deficiencies of Yamazaki, as previously noted. Applicants are not conceding the correctness of the rejection as applied to the rejected claims. Favorable reconsideration of claims 3 and 4 is requested.

Claim 5 was rejected as being unpatentable over Yamazaki in view of Opheij (US 4,918,679). Applicants traverse this rejection. Claim 5 should be considered allowable for at least the same reasons as claim 1, from which it depends. Opheij does not remedy the deficiencies of Yamazaki, as previously noted. Applicants are not conceding the correctness of the rejection as applied to the rejected claim. Favorable reconsideration of claim 5 is requested.

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Claims 6-8 were rejected as being unpatentable over Yamazaki in view of Heemskerk (US 4,665,310). Applicants traverse this rejection. Claims 6-8 should be considered allowable for at least the same reasons as claim 1, from which they depend. Heemskerk does not remedy the deficiencies of Yamazaki, as previously noted. Applicants are not conceding the correctness of the rejection as applied to the rejected claims. Favorable reconsideration of claims 6-8 is requested.

Claims 17-21 were rejected as being unpatentable over Yamazaki in view of Hasegawa (US 5,881,043). Applicants traverse this rejection. Claims 17-21 should be considered allowable for at least the same reasons as claim 1, from which they depend. Hasegawa does not remedy the deficiencies of Yamazaki, as previously noted. Applicants are not conceding the correctness of the rejection as applied to the rejected claims. Favorable reconsideration of claims 17-21 is requested.

In view of the above, favorable reconsideration in the form of a notice of allowance is requested. Any questions regarding this communication can be directed to the undersigned attorney, Douglas P. Mueller, Reg. No. 30,300, at (612)455-3804.

Respectfully Submitted,

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